# Chapter 7 - Communication Elements and Features

## 701 General

**701.1 Scope.** Communications features and elements and features required to be accessible by the scoping provisions adopted by the administrative authority shall comply with the applicable provisions of ~~this~~ chapter 7. ***(FCA-119; TGEC)***

## 702 Alarms

**702.1 General.** Accessible ~~fire alarm systems~~ audible and visual alarms and notification appliances shall ~~comply~~ be installed in accordance with NFPA 72 listed in Section 105.2.2, powered by a commercial light and power source, be permanently connected to the wiring of premises electric system, and be permanently installed ~~in accordance with NFPA 72~~.
***(Proposal 7-001; FCA-083; TGEC)***

~~**702.1 General.** Accessible fire alarm systems shall have audible alarms complying with Section 702.2, and visual alarms complying with Section 702.3.~~ ***(Proposal 7-001)***

~~**EXCEPTION:** Fire alarm systems in medical care facilities shall be permitted to be modified to suit standard health care alarm practice.~~ ***(Proposal 7-001)***

~~**702.2 Audible Alarms.** Audible alarms shall produce a sound that exceeds the average ambient sound level in the room or space by at least 15 dBA or exceeds any maximum sound level with a duration of 60 seconds by 5 dBA, whichever is louder. The signal shall consist of a "three pulse" temporal pattern complying with ANSI S3.41, where evacuation of the building is required. Sound levels for alarm signals shall not exceed 120 dBA.~~ ***(Proposal 7-001)***

~~**702.3 Visual Alarms.** Visual alarms shall comply with Sections 702.3.1 through 702.3.6.~~ ***(Proposal 7-001)***

~~**702.3.1 Light Pulse Characteristics.**~~ ***(Proposal 7-001)***

~~**702.3.1.1 Type.** The lamp shall be a xenon strobe type or equivalent.~~ ***(Proposal 7-001)***

~~**702.3.1.2 Color.** The color shall be clear or nominal white.~~ ***(Proposal 7-001)***

~~**702.3.1.3 Flash Rate.** The flash rate for an individual appliance shall be 1 Hz minimum and 2 Hz maximum over its rated voltage range.~~ ***(Proposal 7-001)***

~~**702.3.1.4 Pulse Duration.** The maximum pulse duration shall be two -tenths of one second with a maximum duty cycle of 40 percent. The pulse duration is defined as the time interval between initial and final points of 10 percent of maximum signal.~~ ***(Proposal 7-001)***

~~**702.3.2 Dispersion.** Light dispersion of wall-mounted appliances shall comply with Table 702.3.2(a). Light dispersion of ceiling-mounted appliances shall comply with Table 702.3.2(b).~~
***(Proposal 7-001)***

~~**702.3.3 Location.** Appliances shall comply with Section 702.3.3.1 or 702.3.3.2.~~
***(Proposal 7-001)***

**EXCEPTION:** Appliances in sleeping rooms shall comply with Section 702.3.6. ***(Proposal 7-001)***

**702.3.3.1 Wall-Mounted Appliances.** Appliances shall be 80-inches (2030 mm) minimum and 96-inches (2440 mm) maximum above the floor or ground, measured to the bottom of the appliance. ***(Proposal 7-001)***

**EXCEPTION:** Wall mounted appliances which are part of a smoke detector shall be 4-inches (100 mm) minimum and 12-inches (305 mm) maximum below the ceiling, measured to the top of the smoke detector. ***(Proposal 7-001)***

**702.3.3.2 Ceiling-Mounted Appliances.** Appliances shall be on the ceiling. Where ceiling height exceeds 30-feet (9145 mm), appliances shall be suspended from the ceiling to a height of 30-feet (9145 mm) maximum above the floor or ground. ***(Proposal 7-001)***

**702.3.4 Spacing and Intensity.** Spacing and minimum effective intensity for appliances shall comply with Sections 702.3.4.1 through 702.3.4.3. ***(Proposal 7-001)***

**EXCEPTIONS:**

1. Appliances in corridors shall comply with Section 702.3.5.
2. Appliances in sleeping rooms shall comply with Section 702.3.6. ***(Proposal 7-001)***

**702.3.4.1 General.** The signal provided by the appliance or appliances shall be visible either by direct view or by reflection from all parts of the covered area. Multiple appliances within an area are permitted only where size, shape, building construction, or furnishings prohibit total coverage by a single appliance. Where multiple appliances are provided in a single area to provide total coverage, the appliances shall comply with one of the following: ***(Proposal 7-001)***

(1) A maximum of 2 appliances on opposite walls;
(2) The appliances shall have synchronized flashes; or
(3) In rooms 80-feet by 80-feet (24 m by 24 m) or greater in size, more than two appliances such that all appliances in any 135-degree field of view are spaced a minimum of 55-feet (17 m) from each other. ***(Proposal 7-001)***

**702.3.4.2 Wall-Mounted Appliances.** Spacing and minimum effective intensity for wall-mounted appliances shall comply with Table 702.3.4.2, provided the appliance is at the midpoint of the longest side of the area served. Where the appliance is not at the midpoint, the minimum effective intensity shall be based on a maximum area of coverage equal to the distance to the opposite side of the area served, or double the distance to the farthest adjacent side of the area served, whichever is greater. ***(Proposal 7-001)***

**702.3.4.3 Ceiling Mounted Appliances.** Spacing and minimum effective intensity for ceiling mounted appliances shall comply with Table 702.3.4.3, provided the appliance is the center point of the area served. Where the appliance is not at the center point, the minimum effective intensity shall be based on a maximum area of coverage equal to two times the distance from the appliance to the farthest side of the area served. ***(Proposal 7-001)***

**702.3.5 Corridors.** Appliances in corridors that are 20-feet (6095 mm) wide maximum shall comply with Section 702.3.5. Appliances in corridors exceeding 20-feet (6095 mm) in width shall comply with Section 702.3.4. ***(Proposal 7-001)***

**702.3.5.1 Appliance Spacing.** Appliances shall be 15-feet (4570 mm) maximum from each end of the corridor, and shall be 50-feet (15 m) minimum and 100-feet (30 m) maximum apart along

the corridor. Interruptions to the concentrated viewing path by doors, elevation changes, or other obstructions shall constitute the end of the corridor for the purpose of this section. ***(Proposal 7-001)***

**702.3.5.2 Minimum Effective Intensity.** Appliances shall have a minimum effective intensity of 15 candelas. ***(Proposal 7-001)***

**702.3.6 Sleeping Rooms and Suites.** Visual alarm appliances required in sleeping rooms and suites shall comply with Sections 702.3.6.1 through 702.3.6.3. ***(Proposal 7-001)***

**702.3.6.1 Activation.** Where single or multiple-station smoke detectors are provided in the sleeping room or suite, a visual alarm that is activated upon activation of the smoke detectors shall be provided within the room or suite. Where a building fire alarm system is provided, a visual alarm that is activated upon activation of the building fire alarm system shall be provided within the room or suite. The signaling line or channel between the activating device of the appliance and the building fire alarm system shall be monitored for integrity by the building fire alarm system. Where the same appliance is used for visual notification of smoke detector and fire alarm system activation, activation of the room or suite smoke detectors shall not activate the building fire alarm system. ***(Proposal 7-001)***

**702.3.6.2 Location.** In sleeping rooms or suites having a linear dimension exceeding 16-feet (4875 mm), the appliance shall be 16-feet (4875 mm) maximum from the head of the bed location, measured horizontally. Appliances shall be permanently installed. Where a suite contains more than one sleeping room, an appliance shall be provided in each sleeping room. ***(Proposal 7-001)***

**702.3.6.3 Minimum Effective Intensity and Mounting Height.** Wall mounted appliances 24-inches (610 mm) minimum below the ceiling shall have a minimum effective intensity of 110 candela. Ceiling-mounted appliances and wall-mounted appliances less than 24-inches (610 mm) below the ceiling shall have a minimum effective intensity of 177 candela. ***(Proposal 7-001)***

**Table 702.3.2(a) Light Dispersion for Wall Mounted Visual Alarms**

| Vertical Dispersion | | Horizontal Dispersion | |
|---|---|---|---|
| Degrees from Horizontal | Percent of Rated | Degrees from Vertical | Percent of Rated |
| 0 | 100 | 0 | 100 |
| 5-30 | 90 | 5-25 | 90 |
| 35 | 65 | 30-45 | 75 |
| 40 | 46 | 50 | 55 |
| 45 | 34 | 55 | 45 |
| 50 | 27 | 60 | 40 |
| 55 | 22 | 65 | 35 |
| 60 | 18 | 70 | 35 |
| 65 | 16 | 75 | 30 |
| 70 | 15 | 80 | 30 |
| 75 | 13 | 85 | 25 |
| 80 | 12 | 90 | 25 |

**~~Table 702.3.2(a) Light Dispersion for Wall Mounted Visual Alarms~~**

| ~~Vertical Dispersion~~ | | ~~Horizontal Dispersion~~ | |
|---|---|---|---|
| ~~Degrees from Horizontal~~ | ~~Percent of Rated~~ | ~~Degrees from Vertical~~ | ~~Percent of Rated~~ |
| ~~85~~ | ~~12~~ | [redacted] | [redacted] |
| ~~90~~ | ~~12~~ | [redacted] | [redacted] |

***(Proposal 7-001)***

**Table 702.3.2(b) Light Dispersion for Ceiling Mounted Visual Alarms**

| ~~Degrees from Vertical~~ | ~~Percent of Rated~~ |
|---|---|
| ~~0~~ | ~~100~~ |
| ~~5-25~~ | ~~90~~ |
| ~~30-45~~ | ~~75~~ |
| ~~50~~ | ~~55~~ |
| ~~55~~ | ~~45~~ |
| ~~60~~ | ~~40~~ |
| ~~65~~ | ~~35~~ |
| ~~70~~ | ~~35~~ |
| ~~75~~ | ~~30~~ |
| ~~80~~ | ~~30~~ |
| ~~85~~ | ~~25~~ |
| ~~90~~ | ~~25~~ |

***(Proposal 7-001)***

**~~Table 702.3.4.2 - Spacing Allocation for Wall Mounted Visual Alarms~~**

| [redacted] | ~~Minimum Required Light Output, Candela (Effective Intensity)~~ | | |
|---|---|---|---|
| ~~Maximum Area of Coverage~~ | ~~One Light per Area~~ | ~~Two Lights per Area~~ | ~~Four Lights per Area~~ |
| ~~20' x 20'~~ | ~~15~~ | ~~Not Permitted~~ | ~~Not Permitted~~ |
| ~~30' x 30'~~ | ~~30~~ | ~~15~~ | ~~Not Permitted~~ |
| ~~40' x 40'~~ | ~~60~~ | ~~30~~ | ~~Not Permitted~~ |
| ~~50' x 50'~~ | ~~95~~ | ~~60~~ | ~~Not Permitted~~ |
| ~~60' x 60'~~ | ~~135~~ | ~~95~~ | ~~Not Permitted~~ |
| ~~70' x 70'~~ | ~~185~~ | ~~95~~ | ~~Not Permitted~~ |
| ~~80' x 80'~~ | ~~240~~ | ~~135~~ | ~~60~~ |
| ~~90' x 90'~~ | ~~305~~ | ~~185~~ | ~~95~~ |
| ~~100' x 100'~~ | ~~375~~ | ~~240~~ | ~~95~~ |

| | | | |
|---|---|---|---|
| 110' x 110' | 455 | 240 | 135 |
| 120' x 120' | 540 | 305 | 135 |
| 130' x 130' | 635 | 375 | 185 |

***(Proposal 7-001)***

**Table 702.3.4.3 - Spacing Allocation for Ceiling Mounted Visual Alarms**

| | Minimum Required Light Output, Candela (Effective Intensity) | |
|---|---|---|
| **Maximum Area of Coverage** | **Maximum Ceiling Height** | **One Light** |
| 20' x 20' | 10 feet (3050 mm) | 15 |
| 30' x 30' | | 30 |
| 40' x 40' | | 60 |
| 50' x 50' | | 95 |
| 20' x 20' | 20 feet (6095 mm) | 30 |
| 30' x 30' | | 45 |
| 40' x 40' | | 80 |
| 50' x 50' | | 115 |
| 20' x 20' | 30 feet (9145 mm) | 55 |
| 30' x 30' | | 75 |
| 40' x 40' | | 115 |
| 50' x 50' | | 150 |

***(Proposal 7-001)***

## 703 Signs

**703.1 General.** Accessible signs shall comply with Section 703 and Section 307.3. Where both visual and tactile characters are required, either one sign with both visual and tactile characters, or two separate signs, one with visual, and one with tactile characters, shall be provided. ***(Proposals 3-009, CP-190; FCA-085)***

**703.2 Sign Corners and Edges**. Corners and edges of signs shall be rounded or eased. ***(Proposals 7-017, 7-022; FCA-086)***

**703.2 Characters that are both Tactile and Visual.** Characters required to be tactile shall comply with Sections 703.2.1 through 703.2.8. ***(Proposal CP-191)***

**EXCEPTION:** Tactile characters complying with Section 703.3, where separate visual characters complying with Section 703.4 provide the same information. ***(Proposal CP-191)***

**703.2.1 Braille.** Tactile characters shall be duplicated in Braille complying with Section 703.5. ***(Proposal CP-192)***

**703.2.2 Finish and Contrast.** Characters and their background shall have a non-glare finish. Characters shall contrast with their background, with either light characters on a dark background, or dark characters on a light background. ***(Proposal CP-193)***

~~**703.2.3 Tactile Character Depth.** Tactile characters shall be raised 1/32-inch (0.8 mm) minimum above their background. Raised borders and elements that are not required shall be 3/8-inch (9.5 mm) minimum from tactile characters.~~ ***(Proposal CP-194)***

~~**703.2.4 Character Forms.** Fonts shall have characters complying with Sections 703.2.4.1 through 703.2.4.5.~~ ***(Proposal CP-195)***

~~**703.2.4.1 Case.** Characters shall be uppercase.~~ ***(Proposal CP-196)***

~~**703.2.4.2 Style.** Characters shall be sans serif. Characters shall not be italic, oblique, script, highly decorative, or of other unusual forms.~~ ***(Proposal CP-197)***

~~**703.2.4.3 Width.** Character width shall be 55 percent minimum and 110 percent maximum of the height of the character, with the width based on the uppercase letter "O" and the height based on the uppercase letter "I."~~ ***(Proposal CP-198)***

~~**703.2.4.4 Height.** Character height, measured vertically from the baseline of the character, shall be 5/8-inch (16 mm) minimum, and 2-inches (51 mm) maximum, based on the uppercase letter "I."~~ ***(Proposal CP-199)***

~~**703.2.4.5 Stroke Thickness.** Characters with rectangular cross sections shall have a stroke thickness which is 10 percent minimum, and 15 percent maximum, of the height of the character, based on the uppercase letter "I". Characters with other cross sections shall have a stroke thickness at the base of the cross sections which is 10 percent minimum, and 30 percent maximum, of the height of the character, and a stroke thickness at the top of the cross sections which is 15 percent maximum of the height of the character, based on the uppercase letter "I".~~
***(See Proposal CP-200, Section moved to new Section 703.3.6)***

~~**703.2.5 Character Spacing.** Spacing shall be measured between the two closest points of adjacent characters within a message, excluding word spaces. Where characters have rectangular cross sections, spacing between individual characters shall be 1/8-inch (3 mm) minimum and 3/8-inch (10 mm) maximum. Where characters have other cross sections, spacing between individual characters shall be 1/16-inch (2 mm) minimum and 3/8 inch (10 mm) maximum at the base of the cross sections, and 1/8-inch (3 mm) minimum and 3/8 inch (10 mm) maximum at the top of the cross sections.~~
***(See Proposal CP-201, Section moved to new Section 703.3.7)***

~~**703.2.6 Line Spacing.** Spacing between the baselines of separate lines of characters shall be 135 percent minimum to 170 percent maximum of the character height.~~ ***(Proposal CP-202)***

~~**703.2.7 Mounting Height.** Characters shall be 48-inches (1220 mm) minimum and 60-inches (1525 mm) maximum above the adjacent floor or ground surface, measured from the baseline of the characters.~~ ***(Proposal CP-203)***

~~**EXCEPTION:** Elevator car controls.~~ ***(Proposal CP-203)***

~~**703.2.8 Mounting Location.** Where a sign containing tactile characters is provided at a door, the sign shall be alongside the door on the latch side. Where a tactile sign is provided at double doors, the sign shall be to the right of the right-hand door. Where there is no wall space on the latch side of a single door, or to the right side of double doors, signs shall be on the nearest adjacent wall. Signs containing tactile characters shall have an 18-inch (455 mm) minimum by 18-inch (455 mm) minimum space on the floor or ground, centered on the sign, beyond the arc of any door swing between the closed position and 45 degree open position.~~ ***(Proposal CP-204)***

~~**EXCEPTION:** Door mounted signs shall be permitted on the push side of doors with closers and without hold open devices.~~ ***(Proposal CP-204)***

**703.2 Visual Characters.** ***(TGEC)***

**703.2.1 ~~703.4 Visual Characters~~ General.** ~~Accessible~~ Visual characters shall comply with ~~Sections 703.4.1 through 703.4.5~~ Section 703.2. ***(Proposal CP-217; TGEC)***

**EXCEPTION**: ~~Where~~ Visual characters complying with Section~~s~~ 703.3 ~~and 703.4, they~~ shall not be required to comply with Section~~s~~ 703.2 ~~5.1 through 703.5.8.~~
***(Proposal CP-217; FCA-119; TGEC)***

**703.2.2 ~~703.4.2.1~~ Case.** Characters shall be uppercase, lowercase, or a combination of both.

**703.2.3 ~~703.4.2.2~~ Style.** Characters shall be conventional in form. Characters shall not be italic, oblique, script, highly decorative, or of other unusual forms.

**703.2.4 ~~703.4.2.4~~ Character Height**. The uppercase letter "I" shall be used to determine the allowable height of all characters of a font. The uppercase letter "I" of the font shall have a minimum ~~character~~ height~~, measured from the baseline of the character~~, ~~shall~~ complying with Table 703.2.4 ~~703.4.2.4, based on the height of the characters above the floor or ground of the viewing location and the minimum viewing distance~~. Viewing distance shall be measured as the horizontal distance between the character and an obstruction preventing further approach towards the sign. ~~Character height shall be based on the uppercase letter "I." Minimum viewing distance shall be measured as the horizontal distance where an obstruction prevents further approach toward the sign.~~ ***(Proposal CP-220; TGEC)***

**~~Table 703.4.2.4 - Minimum Character Heights for Visual Signs~~**

| ~~Height above Floor or Ground to Top of Character~~ | ~~Minimum Viewing Distance~~ | ~~Minimum Character Height~~ | ~~Notes~~ |
|---|---|---|---|
| ~~40 inches - ≤ 70 inches (1015 mm - 1780 mm)~~ | ~~≤ 6 feet (1830 mm)~~ | ~~$^5/_8$ inch (16 mm)~~ | ~~Except elevators~~ |
| ~~40 inches - ≤ 70 inches (1015 mm - 1780 mm)~~ | ~~> 6 feet (1830 mm)~~ | ~~$^5/_8$ inch (16 mm), plus $^1/_8$ inch per foot (3.2 mm per 305 mm) of viewing distance beyond 6 feet (1830 mm)~~ | ~~Except elevators~~ |
| ~~>70 inches - ≤ 120 inches (1780 mm - 3050 mm)~~ | ~~≤ 15 feet (4570 mm)~~ | ~~2 inches (51 mm)~~ | [redacted] |
| ~~>70 inches - ≤ 120 inches (1780 mm - 3050 mm)~~ | ~~> 15 feet (4570 mm)~~ | ~~2 inches (51 mm), plus $^1/_8$ inch per foot (3.2 mm per 305 mm) of viewing distance beyond 15 feet (4570 mm)~~ | [redacted] |
| ~~> 120 inches (3050 mm)~~ | ~~≤ 21 feet (6400 mm)~~ | ~~3 inches (75 mm)~~ | [redacted] |
| ~~> 120 inches (3050 mm)~~ | ~~> 21 feet (6400 mm)~~ | ~~3 inches (75 mm), plus $^1/_8$ inch per foot (3.2 mm per 305 mm) of viewing distance beyond 21 feet (6400 mm)~~ | [redacted] |

***(Proposal CP-221)***

| Table 703.2.4 –Visual Character Heights | | |
|---|---|---|
| **Height above ~~to Finish~~ Floor ~~or Ground from~~ to Baseline of Character** | **Horizontal Viewing Distance** | **Minimum Character Height** |
| 40 inches (1015 mm) to less than or equal to 70 inches (1780 mm) | Less than 6 feet (1830 mm) | 5/8 inch (16 mm) |
| | 6 feet (1830 mm) and greater | 5/8 inch (16 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 6 feet (1830 mm) |
| Greater than 70 inches (1780 mm) to less than or equal to 120 inches (3050 mm) | Less than 15 feet (4570 mm) | 2 inches (51 mm) |
| | 15 feet (4570 mm) and greater | 2 inches (51 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 15 feet (4570 mm) |
| Greater than 120 inches (3050 mm) | less than 21 feet (6400 mm) | 3 inches (75 mm) |
| | 21 feet (6400 mm) and greater | 3 inches (75 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 21 feet (6400 mm) |

***(Proposal CP-221; FCA-004; TGEC)***

~~**703.4.2 Character Forms.** Fonts shall have characters complying with Sections 703.4.2.1 through 703.4.2.5.~~ ***(Proposal CP-218)***

**703.2.5 ~~703.4.2.3~~ Character Width ~~Proportions~~.** The uppercase letter “O” shall be used to determine the allowable width of all characters of a font. ~~Character~~ The width of the uppercase letter “O” of the font shall be 55 percent minimum and 110 percent maximum the height of the ~~character, with the width based on the uppercase letter “O,” and the height based on the~~ uppercase “I” of the font. ***(Proposal CP-219; TGEC)***

**703.2.6 ~~703.4.2.5~~ Stroke Width ~~Thickness~~.** ~~Characters shall have a~~ The uppercase letter “I” shall be used to determine the allowable stroke width of all characters of a font. The stroke ~~thickness which is based on of the uppercase letter "I"~~ shall be 10 percent minimum, and 30 percent maximum ~~of~~ the height of the ~~character. based on the~~ uppercase letter “I” of the font.
***(Proposal CP-223; FCA-085; TGEC)***

**703.2.7 ~~703.4.3~~ Character Spacing.** Spacing shall be measured between the two closest points of adjacent characters within a message, excluding word spaces. Spacing between individual characters shall be 10 percent minimum and 35 percent maximum of character height.
***(Proposal CP-224)***

**703.2.8 ~~703.4.4~~ Line Spacing.** Spacing between the baselines of separate lines of characters within a message shall be 135 percent minimum to 170 percent maximum of character height.

**703.2.9 ~~703.4.5~~ Height ~~From Finish~~ Above Floor ~~or Ground~~ ~~Mounting Height~~.** Visual characters shall be 40 inches (1015 mm) minimum above the ~~finish~~ floor ~~or ground~~ of the viewing position, measured to the baseline of the character. ~~Mounting~~ Heights shall comply with Table 703.2.4 ~~703.4.2.4~~, based on the size of the characters ~~on the sign~~.
***(Proposal CP-222; FCA-004; TGEC)***

**EXCEPTION:** Visual characters indicating elevator car controls shall not be required to comply with ~~this~~ Section 703.2.9. ***(Proposal CP-222; TGEC)***

**703.2.10 ~~703.4.1~~ Finish and Contrast.** Characters and their background shall have a non-glare finish. Characters shall contrast with their background, with either light characters on a dark background, or dark characters on a light background.

**703.3 Tactile Characters**. ***(TGEC)***

**703.3.1 ~~Tactile~~ ~~Raised Characters~~ General**. ~~Where tactile characters are required, and separate tactile and visual characters with the same information are provided, tactile characters shall comply with Sections 703.3.1 through 703.3.7 and visual characters shall comply with Section 703.4.~~ ~~Raised~~ Tactile characters shall comply with Section 703.3, and shall be duplicated in ~~Braille~~ braille complying with Section 703.4. ~~Raised *characters* shall be installed in accordance with Section 703.5.~~ ***(Proposal CP-205; FCA-119)***

~~**703.3.1 Braille.** Tactile characters shall be duplicated in Braille complying with Section 703.5.~~ ***~~(Proposal CP-206)~~***

**703.3.2 ~~Tactile Character~~ Depth.** Tactile ~~Raised~~ characters shall be raised 1/32 inch (0.8 mm) minimum above their background. ~~Raised borders and elements that are not required shall be 3/8-inch (9.5 mm) minimum from tactile characters.~~ ***(Proposal CP-207; FCA-119; TGEC)***

~~**703.3.3 Character Forms.** Fonts shall have characters complying with Sections 703.3.3.1 through 703.3.3.5.~~ ***~~(Proposal CP-208)~~***

**703.3.3 ~~703.3.3.1~~ Case.** Characters shall be uppercase.

**703.3.4 ~~703.3.3.2~~ Style.** Characters shall be sans serif. Characters shall not be italic, oblique, script, highly decorative, or of other unusual forms.

**703.3.5 ~~703.3.3.4~~ Character Height**. The uppercase letter “I” shall be used to determine the allowable height of all characters of a font. ~~Character~~ The height of the uppercase letter “I” of the font, measured vertically from the baseline of the character, shall be ~~1/2~~ 5/8 inch (~~13~~ 16 mm) minimum, and ~~3/4~~ 2 inches (~~19~~ 51 mm) maximum ~~based on the height of the uppercase letter "I."~~
***(Proposal CP-210; TGEC)***

**EXCEPTION:** Where separate tactile ~~raised~~ and visual characters with the same information are provided, the height of the tactile ~~raised character height~~ uppercase letter “I” shall be permitted to be ½ inch (13 mm) minimum. ***(Proposal CP-210; TGEC)***

**703.3.6 ~~703.3.3.3~~ Character ~~Width~~ ~~Proportions~~.** The uppercase letter "O" shall be used to determine the allowable width of all characters of a font. ~~Character~~ The width of the uppercase letter "O" of the font shall be 55 percent minimum and 110 percent maximum the height of the ~~character, with the width based on the uppercase letter "O," and the height based on the~~ uppercase letter "I" of the font. ***(Proposal CP-209; TGEC)***

**703.3.7 ~~703.3.3.5~~ Stroke Width ~~Thickness~~.** Tactile character stroke width shall comply with Section 703.3.7. The uppercase letter "I" of the font shall be used to determine the allowable stroke width of all characters of a font. ~~Characters with rectangular cross sections shall have a Stroke thickness of the uppercase letter "I" shall be which is 10 percent minimum, and 15 percent maximum, of the height of the character, based on the uppercase letter "I". Characters with other cross sections shall have a stroke thickness at the base of the cross sections which is 10 percent minimum, and 30 percent maximum, of the height of the character, and a stroke thickness at the top of the cross sections which is 15 percent maximum of the height of the character, based on the uppercase letter "I".~~ ***(Proposals CP-200, CP-211; Comment PC-7-007-C; FCA-119; TGEC)***

**703.3.7.1 Maximum.** The stroke width ~~thickness based on of the uppercase letter "I"~~ shall be 15 percent maximum of the height of the uppercase letter "I" ~~character~~ measured at the top surface of the character and 30 percent maximum of the height of the uppercase letter "I" ~~character~~ measured at the base of the character. ***(Comment PC-7-007-C; FCA-085, FCA-119; TGEC)***

**703.3.7.2 Minimum.** When characters are both visual and tactile, the stroke width ~~thickness based on of the uppercase letter "I"~~ shall be 10 percent minimum of the height of the ~~character, based on the~~ uppercase letter "I". ***(Comment PC-7-007-C; FCA-085, FCA; TGEC)***

**703.3.8 ~~703.2.5~~ ~~703.3.4~~ Character Spacing.** Character spacing shall be measured between the two closest points of adjacent ~~raised~~ tactile characters within a message, excluding word spaces. ~~Where characters have rectangular cross sections,~~ Spacing between individual ~~raised~~ tactile characters shall be 1/8 inch (3 mm) minimum measured at the top surface of the characters, ~~and~~ 1/16 inch minimum measured at the base of the characters, and four times the ~~raised~~ tactile character stroke width ~~3/8-inch (10 mm)~~ maximum. ~~Where characters have other cross sections, spacing between individual characters shall be 1/16-inch (2 mm) minimum and four times the raised character stroke width 3/8 inch (10 mm) maximum at the base of the cross sections, and 1/8-inch (3 mm) minimum and four times the raised character stroke width 3/8 inch (10 mm) maximum at the top of the cross sections.~~ Characters shall be separated from raised borders and decorative elements 3/8 inch (9.5 mm) minimum.
***(Proposals CP-201, CP-212; Comment PC-7-005-C; FCA-119; TGEC)***

**703.3.9 ~~703.3.5~~ Line Spacing.** Spacing between the baselines of separate lines of ~~raised~~ tactile characters within a message shall be 135 percent minimum and 170 percent maximum of the ~~raised~~ tactile character height. ***(Proposal CP-213; FCA-119; TGEC)***

~~**703.4 Installation Height and Location.** Signs with *tactile characters* shall comply with Section 703.4.~~ ***(Proposal CP-214; FCA-119)***

**703.3.10 ~~703.3.6~~ ~~Mounting~~ Height Above ~~Finish~~ Floor ~~or Ground~~**. Tactile characters shall be 48 inches (1220 mm) minimum ~~and 60 inches (1515 mm) maximum~~ above the ~~adjacent~~ ~~finish~~ floor ~~or ground~~ ~~surface~~, measured ~~from~~ to the baseline of the lowest tactile character~~s~~ and 60 inches (1525 mm) maximum above the ~~finish~~ floor ~~or ground~~ ~~surface~~, measured ~~from~~ to the baseline of the highest tactile character. ***(Proposal CP-215; FCA-004; TGEC)***

**EXCEPTION:** Tactile characters for elevator car controls shall not be required to comply with ~~this~~ Section 703.3.10. ***(Proposal CP-215; TGEC)***

**703.3.11 ~~703.3.7~~ ~~Mounting~~ Location**. Where a tactile sign is provided at a door, the sign shall be alongside the door ~~on~~ at the latch side. Where a tactile sign is provided at double doors with one active leaf, the sign shall be located on the inactive leaf. Where a tactile sign is provided at double doors with two active leaves, the sign shall be to the right of the right-hand door. Where there is no wall space on the latch side of a single door, or to the right side of double doors, signs shall be on the nearest adjacent wall. Signs containing tactile characters shall be located so that a clear floor area ~~clear floor space of~~ ~~have an~~ 18 inch (455 mm) minimum by 18 inch (455 mm) minimum ~~space on the floor or ground~~, centered on the ~~sign~~ tactile characters is provided beyond the arc of any door swing between the closed position and 45 degree open position.
***(Proposal CP-216; TGEC)***

**EXCEPTION:** ~~Door-mounted~~ Signs with tactile characters shall be permitted on the push side of doors with closers and without hold-open devices. ***(Proposal CP-216)***

**703.3.12 Finish and Contrast.** Characters and their background shall have a non-glare finish. Characters shall contrast with their background with either light characters on a dark background, or dark characters on a light background. ***(FCA-119)***

**EXCEPTION.** Where separate tactile characters and visual characters with the same information are provided, tactile characters are not required to have non-glare finish or to contrast with their background. ***(FCA-119)***

**703.4 Braille.** ***(TGEC)***

**703.4.1 ~~703.5~~ ~~Braille~~ General.** ~~Tactile characters shall be accompanied by~~ Braille shall be contracted (Grade 2) braille ~~II Braille complying~~ and shall comply with Section~~s~~ 703.4 ~~and 703.4. 703.5.1 through 703.5.4~~ ~~703.5.3~~ and Table 703.5. ~~The indication of an uppercase letter or letters shall only be used before the first word of sentences, proper nouns and names, individual letters of the alphabet, initials, or acronyms.~~ ~~Braille dots shall have a domed or rounded shape.~~
***(Proposal 7-024, CP-225; Comment PC-7-011; FCA-119)***

~~**703.5.4 Braille Standard.** Braille shall comply with literary Braille.~~ ***(Proposal 7-024)***

~~**EXCEPTION:** The indication of an uppercase letter or letters shall only be used before the first word of sentences, proper nouns and names, individual letters of the alphabet, initials, or acronyms.~~ ***(Proposal 7-024)***

**703.4.2 Uppercase Letters.** The indication of an uppercase letter or letters shall only be used before the first word of sentences, proper nouns and names, individual letters of the alphabet, initials, or acronyms. ***(Comment PC-7-011; TGEC)***

**703.4.3 Dimensions.** Braille dots shall have a domed or rounded shape and shall comply with Table 703.4.3. ***(Proposal CP-226)***

**Table 703.4.3**
**Braille Dimensions**

| Measurement Range | Minimum in Inches<br>Maximum in Inches |
|---|---|
| Dot base diameter | 0.059 (1.5 mm)<br>to<br>0.063 (1.6 mm) |
| Distance between two dots in the same cell | 0.090 (2.3 mm)<br>to<br>0.100 (2.5 mm) |
| Distance between corresponding dots in adjacent cells [1] | 0.241 (6.1 mm)<br>to<br>0.300 (7.6 mm) |
| Dot height | 0.025 (0.6 mm)<br>to<br>0.037 (0.9 mm) |
| Distance between corresponding dots from one cell directly below [1] | 0.395 (10.0 mm)<br>to<br>0.400 (10.2 mm) |

[1] measured center to center

***(Proposal CP-227)***

~~**Table 703.5C - Measurement Range for Standard Sign Braille**~~

| ~~Measurement Range for:~~ | ~~Minimum~~ | ~~Maximum~~ |
|---|---|---|
| ~~Dot base diameter~~ | ~~0.059 inch (1.5 mm)~~ | ~~0.063 inch (1.6 mm)~~ |
| ~~Distance between two dots in same cell, center to center~~ | ~~0.090 inch (2.3 mm)~~ | ~~0.100 inch (2.5 mm)~~ |
| ~~Distance between corresponding dots in adjacent cells, center to center~~ | ~~0.241 inch (6.1 mm)~~ | ~~0.300 inch (7.6 mm)~~ |
| ~~Dot Height~~ | ~~0.025 inch (0.6 mm)~~ | ~~0.037 inch (0.9 mm)~~ |
| ~~Distance between corresponding dots from one cell to the cell directly below, center to center~~ | ~~0.395 inch (10.0 mm)~~ | ~~0.400 inch (10.1 mm)~~ |

***(Proposal CP-227)***

**703.4.4** ~~**703.5.1**~~ ~~**Location**~~ **Position.** Braille shall be below the corresponding text. If text is multi-lined, Braille shall be placed below entire text. Braille shall be separated 3/8 inch (9.5 mm) minimum from any other tactile characters and 3/8 inch (9.5 mm) minimum from raised borders and decorative elements. Braille provided on elevator car controls shall be separated 3/16 inch (4.8 mm) minimum either directly below or adjacent to the corresponding raised characters or symbols. ***(Proposal CP-228; TGEC)***

~~**EXCEPTION**: Braille provided on elevator car controls shall be separated 3/16 inch (4.8 mm) minimum either directly below or adjacent to the corresponding raised characters or symbols.~~ ***(TGEC)***

~~**703.5.2 Raised Elements and Borders.** Raised borders and elements that are not required shall be 3/8 inch (10 mm) minimum from tactile characters.~~ ***(Proposal CP-229)***

**703.4.5 Mounting Height.** Braille shall be ~~40~~ 48 inches (~~1015~~ 1218 mm), and 60 inches (1525 mm) maximum, above the floor ~~or ground~~, measured ~~from~~ to the baseline of the ~~Braille~~ braille cells. ***(Proposals 7-029, CP-230; FCA-004, FCA-119; TGEC)***

**EXCEPTION:** Elevator car controls shall not be required to comply with Section 703.4.5.
***(Proposal CP-230; TGEC)***

**703.5 Pictograms.** ***(TGEC)***

**703.5.1 ~~703.6 Pictograms~~ General.** Pictograms shall comply with Section~~s~~ 703.5 ~~703.6.1 through 703.6.3~~.

**703.5.2 ~~703.6.1~~ Pictogram Field.** Pictograms shall have a field ~~with a height of~~ 6 inches (150 mm) minimum in height. Characters or Braille shall not be located in the pictogram field. ***(Proposal CP-231; TGEC)***

**703.5.3 ~~703.6.2~~ Finish and Contrast.** Pictograms and their fields shall have a non-glare finish. Pictograms shall contrast with their fields, with either a light pictogram on a dark field or a dark pictogram on a light field.

**703.5.4 ~~703.6.3~~ Text Descriptors**. Where text descriptors for pictograms are required, they shall be ~~have text descriptors~~ located directly below ~~or adjacent to~~ the pictogram field. ~~and~~ Text descriptors shall comply with Section~~s~~ ~~703.2~~ 703.3 and 703.4.
***(Proposal CP-232; Comment PC-7-016; TGEC)***

**703.6 Symbols of Accessibility.** ***(TGEC)***

**703.6.1 ~~703.7 Symbols of Accessibility~~ General.** Symbols of accessibility shall comply with Section~~s~~ 703.6 ~~703.7.1 through 703.7.2~~. ***(TGEC)***

**703.6.2 ~~703.7.1~~ Finish and Contrast.** Symbols of accessibility and their backgrounds shall have a non-glare finish. Symbols of accessibility shall contrast with their backgrounds, with either a light symbol on a dark background or a dark symbol on a light background.

**703.6.3 ~~703.7.2~~ Symbols**

**703.6.3.1 ~~703.7.2.1~~ International Symbol of Accessibility**. ~~Where~~ The International Symbol of Accessibility ~~is required, it~~ shall ~~be proportioned complying~~ comply with Figure 703.6.3.1 ~~703.7.2.1~~. ***(Proposal CP-233)***

**703.6.3.2 ~~703.7.2.2~~ International Symbol of TTY.** ~~Where~~ The International Symbol of TTY ~~is required, it~~ shall comply with Figure 703.6.3.2 ~~703.7.2.2~~. ***(Proposal CP-234)***

**703.6.3.3 ~~703.7.2.4~~ Assistive Listening Systems.** ~~Where~~ Assistive listening systems ~~are required to~~ shall be identified by the International Symbol of Access for Hearing Loss~~, it shall comply~~ complying with Figure 703.6.3.3 ~~703.7.2.4~~. ***(Proposal CP-236; TGEC)***

**703.6.3.4 ~~703.7.2.3~~ Volume Controlled Telephones.** ~~Where~~ Telephones with volume controls ~~are required to be~~ shall identified~~, the identification symbol shall be~~ by a pictogram of a telephone handset with radiating sound waves on a square field, such as shown in Figure 703.6.3.4 ~~703.7.2.3~~. ***(Proposal CP-235; TGEC)***

~~**703.8.2.5 Cleaner Air Symbol.** Where spaces providing lowered levels of airborne contaminants are required to be identified, the identification symbol shall comply with Figure 703.8.2.5.~~ ***(Proposal 7-033; FCA-088)***

~~**703.9 Remote Infrared Audible Sign (RIAS) Receivers.** Where personal receivers are used to make information on signs accessible to persons who are blind or who have print disabilities, in order to provide a standard receiver, basic speech messages shall be frequency modulated at 25 kHz (+/- 10% deviation), and shall have an infrared wavelength from 850 to 950 nanometer (nm). The receiver shall produce a 12 decibel (dB) signal-plus-noise-to-noise ratio with a kHz modulation tone at +/- 2.5 kHz deviation of the 25 kHz subcarrier at an optical power density of 26 picowatts per square millimeter measured at the receiver photosensor aperture. The audio output from an internal speaker shall be at 75 dB(A) minimum at 18-inches with a maximum of 10% distortion. The receiver photo sensor aperture shall be 80 degrees in acceptance angle. The receiver shall be designed for a high dynamic range and capable of operating in full-sun background illumination. Capture of the receiver by the stronger of two signals in the receiver field of view requires a received power ratio on the order of 20dB for negligible interference; adjacent transmitter frequency tolerance of 50 Hz to 100 Hz improves the intelligibility of interfering signals.~~ ***(Proposal 7-036; Comment PC-7-018-A)***

**703.7 Remote Infrared Audible Sign (RIAS) ~~Receivers~~ Systems** ***(Comment PC-7-018-A)***

**703.7.1 General.** Remote Infrared Audible Sign Systems shall comply with Section 703.7. ***(TGEC)***

**703.7.2 Transmitters.** Where provided, Remote Infrared Audible Sign Transmitters shall be designed to communicate with receivers complying with 703.7.3 ***(Comment PC-7-018-A)***

**703.7.3 Remote Infrared Audible Sign Receivers.** ***(Comment PC-7-018-A)***

**703.7.3.1 Frequency.** ~~Where personal receivers are used to make information on signs accessible to persons who are blind or who have print disabilities, in order to provide a standard receiver,~~ Basic speech messages shall be frequency modulated at 25 kHz, with a ~~(~~+/- ~~10%~~ 2.5 kHz deviation~~)~~, and shall have an infrared wavelength from 850 to 950 nanometer (nm).
***(Proposal 7-036; Comment PC-7-018-A; TGEC)***

**703.7.3.2 Optical Power Density.** Receiver shall produce a 12 decibel (dB) signal-plus-noise-to-noise ratio with a 1 kHz modulation tone at +/- 2.5 kHz deviation of the 25 kHz subcarrier at an optical power density of 26 picowatts per square millimeter measured at the receiver photosensor aperture. ***(Proposal 7-036; Comment PC-7-018-A)***

**703.7.3.3 Audio Output.** The audio output from an internal speaker shall be at 75 dB(A) minimum at 18 inches (455 mm) with a maximum distortion of 10% ~~distortion~~.
***(Proposal 7-036; Comment PC-7-018-A)***

**703.7.3.4 Reception Range.** The receiver shall be designed for a high dynamic range and capable of operating in full-sun background illumination.
***(Proposal 7-036; Comment PC-7-018-A)***

**703.7.3.5 Multiple signals.** A receiver provided for the capture of the ~~receiver by the~~ stronger of two signals in the receiver field of view ~~requires~~ shall provide a received power ratio on the order of 20 dB for negligible interference. ~~: adjacent transmitter frequency tolerance of 50 Hz to 100 Hz improves the intelligibility of interfering signals.~~
***(Proposal 7-036; Comment PC-7-018-A; FCA-119; TGEC)***

**703.8 Pedestrian Signals.** Accessible pedestrian signals shall comply with ~~the standard~~ Section 4E.06 Accessible Pedestrian Signals, and Section 4E.08. Accessible Pedestrian Signal Detectors of the Manual on Uniform Traffic Control Devices listed in Section 105.2.1, ~~Section 4E.06 Accessible Pedestrian Signals, and Section 4E.08. Accessible Pedestrian Signal Detectors. except for the requirement for choosing audible tones.~~
***(Proposal 7-037; Comment PC-7-019; TGEC)***

**EXCEPTION:** Pedestrian signals are not required to comply with the requirement for choosing audible tones. ***(TGEC)***

**704 Telephones**

**704.1 General.** Accessible public telephones shall comply with Section 704.

**704.2 Wheelchair Accessible Telephones.** Wheelchair accessible public telephones shall comply with Sections 704.2.~~1 through 704.2.5~~.

**704.2.1 Clear Floor ~~or Ground~~ Space.** A clear floor ~~or ground~~ space complying with Section 305 shall be provided. The clear floor ~~or ground~~ space shall not be ~~restricted~~ obstructed by bases, enclosures, or ~~fixed~~ seats. ***(Proposal 7-039; FCA-004; TGEC)***

**704.2.1.1 Parallel Approach.** Where a parallel approach is provided, the distance from the edge of the telephone enclosure to the face of the telephone ~~unit~~ shall be 10 inches (255 mm) maximum. ***(FCA-119)***

**704.2.1.2 Forward Approach.** Where a forward approach is provided, the distance from the front edge of a counter within the enclosure to the face of the telephone ~~unit~~ shall be 20 inches (510 mm) maximum. ***(FCA-119)***

**704.2.2 Operable Parts.** The highest operable part of the telephone shall ~~be within the reach ranges specified in~~ comply with Section 308. Telephones shall have push button controls where service for such equipment is available. ***(TGEC)***

**704.2.3 Telephone Directories.** Where provided, telephone directories shall comply with Section 309.

**704.2.4 Cord Length.** ~~Wheelchair accessible~~ The telephone~~s shall be equipped with a~~ handset cord ~~length of~~ shall be 29 inches (735 mm) minimum in length. ***(FCA-119; TGEC)***

**704.2.5 Hearing Aid Compatibility.** Telephones shall be hearing aid compatible.

**704.3 Volume-Control Telephones**. Public telephones ~~with volume control shall be equipped with a receive~~ required to have volume control~~s~~ shall be equipped with a receive volume control ~~with a range~~ that provides a gain adjustable up to 20 dB minimum. ~~For~~ Incremental volume control shall provide at least one intermediate step-of-gain of ~~a~~ 12 dB ~~of gain~~ minimum ~~and 20 dB of gain maximum~~. An automatic reset shall be provided. ***(Proposal CP-237; TGEC)***

**704.4 TTY.** ~~Where used with a~~ TTY's required at a public pay telephone~~, text telephones~~ shall be permanently affixed within, or adjacent to, the telephone enclosure. ~~If~~ Where an acoustic coupler is used, the telephone cord shall be of sufficient~~ly long~~ length to allow connection of the TTY and the telephone handset ~~receiver~~. ~~When in use, the touch surface of TTY keypads shall be 34 inches (865 mm) minimum above the finish floor.~~ ***(Proposal 7-040; FCA-004; FCA-119; TGEC)***

**704.5 Height ~~Clearances~~.** ~~Clear floor space positioned for a forward approach shall be provided. Knee and toe clearance complying with Section 306 shall be provided below the TTY.~~ When in use, the touch surface of TTY keypads shall be 34 inches (865 mm) minimum above the ~~finish~~ floor. ***(Proposal 7-041, CP-238; FCA-004)***

**EXCEPTION:** Where seats are provided, TTY's shall not be required to comply with Section 704.5. ***(Proposal CP-238)***

**704.6 ~~704.5~~ TTY Shelf.** Where pay telephones designed to accommodate a portable TTY are provided, they shall be equipped with a shelf and an electrical outlet within or adjacent to the telephone enclosure. The telephone handset shall be capable of being placed flush on the surface of the shelf. The shelf shall be capable of accommodating a TTY and shall have a vertical clearance 6 inches (150 mm) ~~high~~ minimum in height ~~vertical clearance~~ above the area where the TTY is placed. ***(TGEC)***

**704.7 ~~704.6~~ Protruding Objects.** Telephones, enclosures, and related equipment shall comply with Section 307.

## 705 Detectable Warnings

**705.1 General.** Detectable warning~~s~~ surfaces shall comply with Section~~s~~ 705.2~~, and 705.3 or 705.4 consist of a surface of truncated domes aligned in a square grid pattern and shall comply with Section 705~~. ***(Proposals 7-047, CP-239; FCA-119; TGEC)***

**705.2 Standardization.** Detectable warning~~s~~ surfaces shall be standard within a building, facility, site, or complex of buildings. ***(Proposal 7-047; Comment PC-7-028-A; FCA-088b, FCA-119)***

**EXCEPTION:** In facilities that have both interior and exterior locations, detectable warnings in exterior locations ~~are~~ shall not be required to comply with Section 705.4. ***(FCA-088b; TGEC)***

**705.3 ~~705.3.1.2~~ Contrast**. ~~The truncated dome~~ Detectable warning surface~~s~~ shall contrast visually with ~~adjoining~~ adjacent ~~walking~~ surfaces, either light-on-dark or dark-on-light. ~~The material used to provide contrast shall be an integral part of the truncated dome surface.~~
***(Proposals 7-047, CP-243; Comment PC-7-028-A)***

**705.4 ~~705.3.1.3~~ Interior Locations.** Detectable warnings in interior locations shall differ from adjoining walking surfaces in resiliency or sound-on-cane contact.
***(Proposal CP-245; Comment PC-7-027-A)***

~~**705.3 Platform Edge Detectable Warnings.** A platform edge detectable warning shall comply with Section 705.3.1, 705.3.2, or 705.3.3. Detectable warning surfaces at platform boarding edges shall be 24 inches (610 mm) wide and shall extend the full length of the platform.~~
***(Proposals CP-244, 7-047; Comment PC-7-028-A; FCA-119)***

**705.5 ~~705.3.1~~ Truncated Domes.** Detectable warning surfaces shall have truncated domes complying with Section 705.5. ~~A 24-inch (610 mm) wide tactile pattern of raised truncated domes~~ surface ~~complying with Sections~~ 705.2 ~~705.3.1.1 through 705.3.1.3 shall be provided on the walking surface at the platform edge.~~ ***(Proposals 7-047, CP-240; FCA-119)***

**705.5.1 ~~705.3.1.1~~ ~~Domes~~ Size**. Truncated domes ~~in a detectable warning surface~~ shall have a base ~~bottom~~ diameter of 0.9 inch (23 mm) minimum to 1.4 inch (36 mm) maximum ~~at the bottom, a top diameter of 0.4 inch (210 mm) minimum to 0.9 inch (23 mm) maximum at the top,~~ and a top diameter of 50% ~~of the base bottom diameter~~ minimum to 65% maximum of the base ~~bottom~~ diameter ~~maximum.~~ ***(Proposals 7-042, CP-241, CP-339; Comment PC-7-025; FCA-119; TGEC)***

**705.5.1 Height.** Truncated domes shall have ~~and~~ a height of 0.2 inch (5.1 mm). ~~and a center-to-center spacing of 2.35 inches (60 mm).~~
***(Proposals 7-042, CP-241, CP-339; Comment PC-7-025; FCA-119; TGEC)***

**705.5.3 ~~Dome~~ Spacing.** Truncated domes ~~in a detectable warning surface~~ shall have a center-to-center spacing of 1.6 inches (41 mm) minimum and 2.4 inches (61 mm) maximum, and a base-to-base ~~bottom-to-bottom~~ spacing of 0.65 inch minimum, measured between the most adjacent domes ~~on a square the grid~~.
***(Proposals CP-242, CP-340; Comment PC-7-025; FCA-119; TGEC)***

**705.5.4 Alignment.** Truncated domes shall be aligned in a square grid pattern.
***(Proposals CP-242, CP-340; TGEC)***

**~~705.2.2 705.3.2 Equivalent Tactile Surface.~~** ~~A 24 inch (610 mm) wide tactile surface shall be provided on the walking surface at the platform edge. The tactile surface shall of equivalent detect ability underfoot shall be provided to that provided by 705.2.2 and shall comply with Section 705.3.1.2 provide contrast in accordance with Section 705.1.3~~.
***(Proposals 7-044, 7-045, 7-047; Comment PC-7-028-A; FCA-119)***

**~~705.2.2 705.3.3 Equivalent Detectability.~~** ~~Detectability of the platform by other construction, technology, or means shall be provided that will ensure equivalent or superior, reliable communication of the impending change to pedestrians who are blind or visually impaired shall be permitted. The information to be communicated must include 24 inches (610 mm) of advance warning of the platform edge and the precise orientation of the platform edge in relation to the pedestrian.~~ ***(Proposals 7-046, 7-047; Comment PC-7-028-A; FCA-119)***

## 706 Assistive Listening Systems

**706.1 General.** Accessible assistive listening systems in assembly areas shall comply with Section 706.

**~~706.2 Placement.~~** ~~Individual fixed seats, served by an assistive listening system, shall have complete view of the stage, playing area, or cinema screen.~~ ***(Proposal 7-048)***

**~~706.3 Types of Systems.~~** ~~Induction loops, infrared systems, FM and AM radio frequency systems, hardwired earphones, and other equivalent devices shall be permitted as acceptable listening systems.~~ ***(Proposal CP-246)***

**706.2 Receiver Jacks**. Receivers required for use with an assistive listening system shall include a 1/8 inch (3.2 mm) standard mono jack. ~~Where other jack types are used, adapters shall be provided to comply with this provision.~~ ***(Proposals 7-049, CP-247)***

**706.3 Receiver Hearing-Aid Compatibility**. Receivers required to be hearing-aid compatible shall interface with ~~T-coils~~ telecoils in hearing aids through the provision of neck loops. ***(Proposals 7-050, CP-248)***

**706.4 Sound Pressure Level.** Assistive listening systems shall be capable of providing a sound pressure level of 110 dB minimum and 118 dB maximum with a dynamic range on the volume control of 50 dB. ***(Proposal CP-249)***

**706.5 Signal-to-Noise Ratio.** The signal-to-noise ratio for internally generated noise in assistive listening systems shall be 18 dB minimum. ***(Proposal CP-250)***

**706.6 Peak Clipping Level.** Peak clipping shall not exceed 18 dB of clipping relative to the peaks of speech. ***(Proposal CP-251)***

## 707 Automatic Teller Machines (ATMs) and Fare Machines

**707.1 General.** Accessible automatic teller machines and fare machines ~~that are required to be accessible~~ shall comply with Section 707. ***(TGEC)***

**707.2 Clear Floor ~~or Ground~~ Space.** A clear floor ~~or ground~~ space complying with Section 305 shall be provided in front of the machine. ***(FCA-004; TGEC)***

**EXCEPTION:** Clear floor ~~or ground~~ space is not required at drive up only automatic teller machines and fare machines. ***(Proposal CP-252; FCA-004)***

**707.3 Operable Parts.** Operable parts shall comply with Section 309. Each operable part shall be able to be differentiated by sound or touch, without activation.

**EXCEPTION:** Drive up only automatic teller machines and fare machines shall not be required to comply with Section 309.2 or Section 309.3. ***(Proposal CP-253; TGEC)***

~~**707.4 Input.** Input devices shall comply with Sections 707.4.1 through 707.4.5.~~
***(Proposal CP-254)***

**707.4 ~~707.4.1~~ Privacy**. Automatic teller machines shall provide the opportunity for the same degree of privacy of input and output ~~shall be~~ available to all individuals ~~utilizing the equipment~~. ***(Proposal CP-255)***

~~**707.4.2 Key Surfaces.** All keys used to operate a machine shall be tactually discernible. Key surfaces shall be offset from the surrounding surface by 1/25 inch (1 mm) minimum. The outer edge of key surfaces shall have a radius of 1/50 inch (0.5 mm) maximum.~~ ***(Proposal CP-260)***

~~**EXCEPTION:** The touch areas of video display screens.~~ ***(Proposal 7-053)***

~~**707.4.3 Separation Between Keys.** Any key surface shall be separated from other key surfaces by 1/8 inch (3.2 mm) minimum. Function keys shall be separated from the keypad equal to a distance that is not less than three times greater than the actual distance between the numeric keys.~~ ***(Proposal CP-261)***

~~**707.4.4 Numeric Keys.** Where provided, numeric keys shall comply with Sections 707.4.4.1 and 707.4.4.2.~~ ***(Proposal CP-262)***

**707.5** ~~**707.4.4.1 Arrangement**~~ **Numeric Keys.** Numeric keys shall be arranged in a 12-key ascending or descending telephone keypad layout. ~~with the number one key in the upper left hand corner.~~ The number five key shall have a single raised dot.
***(Proposal CP-263; Comment PC-7-032-B; FCA-089b)***

~~**707.4.4.2 Marking.** The number five keys shall have a single raised dot.~~
***(Proposal CP-264)***

**707.6** ~~**707.4.5**~~ **Function Keys.** ~~Where provided,~~ Function keys shall comply with Sections 707.6.1 and 707.6.2 ~~707.4.5.1 through 707.4.5.3~~. ***(Proposal CP-265)***

~~**707.4.5.1 Arrangement.** Function keys shall be in the order of enter, clear, cancel, add value, and decrease value horizontally from left to right or vertically from top to bottom. Where provided, add value and decrease value shall be grouped with other function keys.~~ ***(Proposal CP-266)***

**707.6.1** ~~**707.4.5.2 Marking**~~ **Tactile Symbols.** Function key~~s~~ surfaces shall ~~be marked with~~ have raised tactile ~~characters~~ symbols as ~~follows~~ shown in Table 707.6.1. ***(Proposal CP-267; TGEC)***

| Table 707.6.1 – Tactile Symbols | | |
|---|---|---|
| **Key Function** | **Description of Tactile Symbol** | **Tactile Symbol** |
| Enter or Proceed ~~key~~ | ~~Raised~~ Circle | **O** |
| Clear or Correct ~~key~~ | ~~Raised~~ Left Arrow | ¬ |
| Cancel ~~key~~ | ~~Raised~~ "X" | **X** |
| Add Value ~~key~~ | ~~Raised~~ Plus Sign | **+** |
| Decrease Value ~~key~~ | ~~Raised~~ Minus Sign | **-** |

***(TGEC)***

~~- Enter or Proceed key: RAISED CIRCLE;~~
~~- Clear or Correct key: RAISED VERTICAL LINE or BAR~~ ~~LEFT ARROW~~~~;~~
~~- Cancel key: RAISED LETTER "X";~~
~~- Add Value key: RAISED PLUS SIGN;~~
~~- Decrease Value key: RAISED MINUS SIGN.~~
***(Proposal CP-267; TGEC)***

~~**707.4.5.3 Color Coding.** Where function keys are color coded, they shall be colored as follows:~~
~~- Enter or Proceed key: GREEN;~~
~~- Clear or Correct key: BLACK;~~
~~- Cancel key: RED;~~
~~- Add Value key: BLUE;~~
~~- Decrease Value key: YELLOW.~~
***(Proposal CP-268)***

**707.6.2 Contrast.** Function keys shall contrast visually from background surfaces. Characters and symbols on key surfaces shall contrast visually from key surfaces. Visual contrast shall be either light-on-dark or dark-on-light. ***(Proposal CP-268)***

**EXCEPTION:** Tactile symbols required by Section 707.6.1 shall not be required to comply with Section 707.6.2. ***(Proposal CP-268)***

~~**707.5 Output.** Output devices shall comply with Sections 707.5.1 through 707.5.6.~~
***(Proposal CP-269)***

~~**707.5.1 Privacy.** The opportunity for the same degree of privacy of output shall be available to all individuals utilizing the equipment.~~ ***(Proposal CP-270)***

~~**707.5.2 Operating Instructions.** Machines shall provide visual and audible instruction for operation. Visual and audible instruction shall include all information required by Sections 707.5.2.1 through 707.5.2.5.~~ ***(Proposal CP-271)***

~~**707.5.2.1 Initiation.** Instruction shall be initiated by the user of the machine.~~
***(Proposal CP-272)***

~~**707.5.2.2 Expedited Process.** After initiation, instructions shall be available to the experienced user to expedite the transaction.~~
***(Proposal CP-273)***

~~**707.5.2.3 Orientation.** Orientation and assistance for unfamiliar users to the physical features of the machine, operational options, and details for each function shall be provided.~~ ***(Proposal CP-274)***

~~**707.5.2.4 Transaction Prompts.** All transaction prompts within each operation shall be provided.~~ ***(Proposal CP-275)***

~~**707.5.2.5 Input Verification.** Verification of all user inputs shall be provided.~~
***(Proposal CP-276)***

~~**707.5.3 Audible Instruction.** Audible instruction shall be provided through a standard audio mini jack, a telephone handset, a wireless transmission system, or another mechanism that is readily available to all customers.~~ ***(Proposal CP-277)***

**707.7** ~~**707.5.4 Video**~~ **Display Screen.** The ~~video~~ display screen shall comply with Sections 707.7. ~~707.5.4.1 and 707.5.4.2~~. ***(Proposal CP-278)***

**707.7.1** ~~**707.5.4.1**~~ **Visibility.** The ~~video~~ display screen shall be visible from a point located 40 inches (1015 mm) above the center of the clear floor ~~or ground~~ space in front of the machine. ***(Proposal CP-279; FCA-004)***

**EXCEPTION:** ~~This requirement shall not apply to drive up only machines.~~ Drive-up only automatic teller machines and fare machines shall not be required to comply with Section 707.7.1.
***(Proposals CP-278, CP-279)***

**707.7.2** ~~**707.5.4.2**~~ **Characters.** Characters displayed on the screen shall be in a sans serif font. The uppercase letter "I" shall be used to determine the allowable height of all characters of the font. ~~Characters~~ The uppercase letter "I" of the font shall be 3/16 inch (4.8 mm) ~~high~~ minimum in height, ~~based on the uppercase letter "I."~~ Characters shall contrast with their background with either light characters on a dark background, or dark characters on a light background.
***(Proposal CP-280; TGEC)***

~~**707.5.5 Dispensing of Bills.** Machines that dispense paper currency shall dispense the currency so that bills are dispensed in descending order with the lowest denomination on top.~~
***(Proposal CP-281)***

~~**707.5.6 Receipts and Verification.** Where a receipt is available and is requested, the following options shall be provided: a printed receipt, audible presentation of the transaction information provided on the receipt, or both.~~ ***(Proposal CP-282)***

**707.8 Speech Output.** Machines shall be speech enabled. Operating instructions and orientation, visible transaction prompts, user input verification, error messages, and all displayed information for full use shall be accessible to and independently usable by individuals with vision impairments. Speech shall be delivered through a mechanism that is readily available to all users including, but not limited to, an industry standard connector or a telephone handset. Speech shall be recorded or digitized human, or synthesized. ***(Proposal CP-256)***

**EXCEPTIONS:**

1. Audible tones shall be permitted in lieu of speech for visible output that is not displayed for security purposes, including but not limited to, asterisks representing personal identification numbers.
2. Advertisements and other similar information shall not be required to be audible unless they convey information that can be used in the transaction being conducted.
3. Where speech synthesis cannot be supported, dynamic alphabetic output shall not be required to be audible.

***(Proposal CP-256)***

**707.8.1 User Control.** Speech shall be capable of being repeated ~~or~~ and interrupted by the user. There shall be a volume control for the speech function. ***(Proposal CP-257; FCA-119)***

**EXCEPTION:** Speech output for any single function shall be permitted to be automatically interrupted when a transaction is selected. ***(Proposal CP-257)***

**707.8.2 Receipts.** Where receipts are provided, speech output devices shall provide audible balance inquiry information, error messages, and all other information on the printed receipt necessary to complete or verify the transaction. ***(Proposal CP-258)***

**EXCEPTIONS:**

1. Machine location, date and time of transaction, customer account number, and the machine identifier shall not be required to be audible.
2. Information on printed receipts that duplicates audible information available on-screen shall not be required to be presented in the form of an audible receipt.
3. Printed copies of bank statements and checks shall not be required to be audible.

***(Proposal CP-258)***

~~**707.9 Input.** Input devices shall comply with 707.6.~~ ***(Proposal CP-259; TGEC)***

**707.9 Input Controls.** At least one tactually discernible input control shall be provided for each function. Where provided, key surfaces not on active areas of display screens, shall be raised above surrounding surfaces. Where membrane keys are the only method of input, each shall be *tactually* discernable from surrounding surfaces and adjacent keys. ***(Proposal CP-260)***

**707.10 Braille Instructions.** Braille instructions for initiating the speech mode shall be provided. Braille shall comply with Section 703.4. ***(Proposal CP-283)***

**708 Two-Way Communication Systems** ***(Proposal 7-055)***

**708.1 General**. Accessible two-way communication systems ~~required to be accessible~~ shall comply with Section 708. ***(Proposal 7-055; TGEC)***

**708.2 Audible and Visual Indicators**. The system shall provide both visual and audible signals. ***(Proposal 7-055)***

**708.3 Handsets**. Handset cords, if provided, shall be 29 inches (735 mm) ~~long~~ minimum in length. ***(Proposal 7-055)***